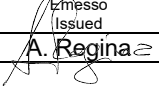
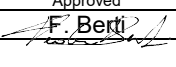


# TECHNICAL DATA SHEET

## INGENIO MAX

200 – 250 - 300 kVA

3-Ph (IN) / 3-Ph (OUT)

Rev.	Descrizione Description	Data Date	Emesso Issued	Approvato Approved	Lingua Language	Pagina Page	di Pag. of Pag.
L	VR187-19	14.11.19			E	1	8
					Codice / Code		
					OMP06078		

## GENERAL INFORMATION

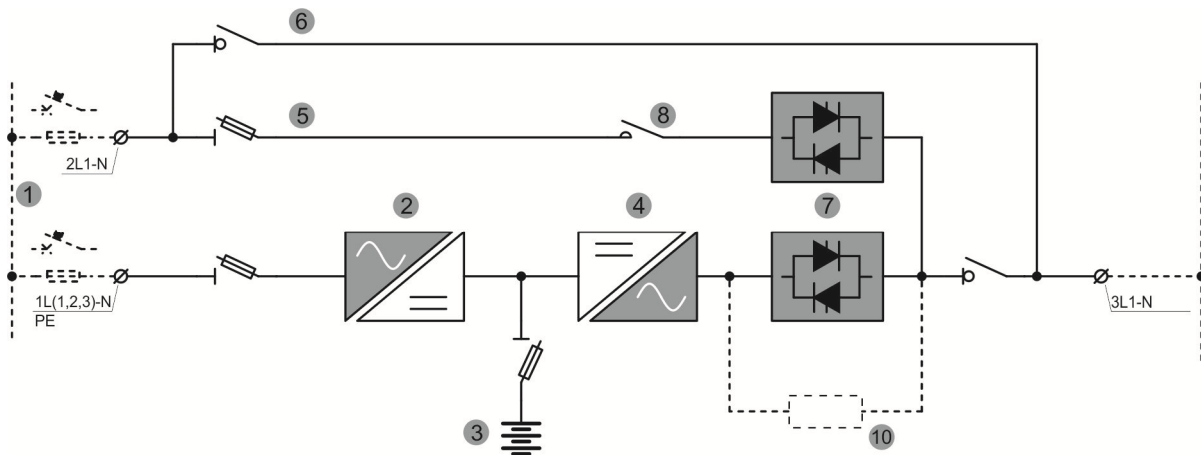
POWER		kVA	200	250	300
UPS type			ON LINE - Doppia Conversione		
Rated apparent output power (cos $\varphi = 1$ )		kVA	200	250	300
Rated active output power (cos $\varphi = 1$ )		kW	200	250	300
AC/AC efficiency* (VFI - ON LINE Double Conversion) * <b>Certified by TÜV NORD GmbH</b>	@ 25% load	%	94,8	Without inverter contactor ≥ 94,9 # With inverter contactor ≥ 95,3	Without inverter contactor ≥ 95,1 # With inverter contactor ≥ 95,7
	@ 50% load	%	95,8	≥ 95,8	≥ 96,1
	@ 75% load	%	95,8	≥ 95,7	≥ 96,0
	@ 100% load	%	95,3	≥ 95,3	≥ 95,6
AC/AC efficiency* (VFD ECO MODE) * <b>Certified by TÜV NORD GmbH</b>	@ 25% load	%	96,3		
	@ 50% load	%	97,9		
	@ 75% load	%	98,4		
	@ 100% load	%	98,8		
Heat dissipation at rated load, VFI mode (cos $\varphi = 1$ )		kW	9,4	11,8	14,1
Ambient temperature	UPS BATTERY	° C	0 ÷ 40		
			0 ÷ 25		
Storage temperature	UPS BATTERY	° C	-10 ÷ 70		
			-15 ÷ 40		
Relative humidity (non condensing)		%	< 95		
Altitude		m	< 1000 (above sea level)		
Power derating for altitude > 1000 m			According to EN 62040-3 0,5% every 100 m		
Cooling			Forced		
Required cooling air volume		m <sup>3</sup> /h	1800	2200	2300
Acoustic noise (according to EN 62040-3)		dB	< 65		
Number of cells for standard Lead acid battery			360 ÷ 372		
Protection degree			IP20		
Electromagnetic compatibility			According to EN 62040-2 (CE marking)		
Safety			According to EN 62040-1		
Test and performance			According to EN 62040-3		
Colour			RAL 9005 (other on request)		
Accessibility			Front access		
Installation			Against the wall		
Overall dimension	W	mm	880		
	D		970		
	H		1978		
Weight (without batteries)		kg	530	745	675
Weight with batteries (maximum)			n.a.	n.a.	n.a.
Input / Output terminals			Cables input from bottom		
Handling			Base provided for fork-lift		

# See the section Option (Last page)

POWER	kVA	200	250	300
Storage and transport conditions		According to EN 62040-3		
Reference standards		EN 62040-1 - EN62040-2 - EN62040-3 ISO 9001:2008 - ISO 14001		
Front panel		Touch-screen 10"		
Voltage-free contact interface		Optional for signalisations / alarms		
Serial communication interface		Standard: RS232/USB Optional: RS485 (ModBus RTU protocol)		
Parallel configuration (optional)		Up to 5+1 (parallel redundant) Up to 6 (power parallel) <sup>(1)</sup>		

(1) For higher configurations contact the manufacturer

## BLOCK DIAGRAM



1. Separate mains input for rectifier and bypass
2. Rectifier battery-charger
3. Battery static switch
4. External battery
5. Inverter
6. Emergency line (bypass)
7. Maintenance bypass line
8. Inverter (SSI) and bypass(SSB) static switch
9. Contact for external back-feed protection
10. Energy enhancement kit (Option)

## RECTIFIER AND BATTERY CHARGER

POWER		kVA	200	250	300
Input			3-phase / 4-wire		
Rated input voltage		Vac	400		
Tolerance		%	-20 / +15		
Input frequency (selectable)		Hz	50 - 60		
Tolerance		%	+/- 10		
Input power factor			> 0,99		
Input current harmonic distortion (THDi) (at rated voltage and THDv < 0,5%)	@ 25% load	%	< 8		
	@ 50% load		< 4		
	@ 75% load		< 3		
	@ 100% load		< 2,5		
Output voltage static stability		%	+/- 1		
Output voltage ripple		%	< 1 (rms)		
Battery recharging characteristic			Intermittent charging with prevailing state of complete rest and control of the battery status IU (DIN 41773)		
Maximum battery recharging current					
- at rated load		A	30	40	40
- max current with DCM function			100	100	100
Rectifier bridge type			IGBT-based PFC		
Input protections			Fuses		
Rated current absorbed from mains @ Vnom (at rated load and battery charged)		A	302	378	453
Maximum current absorbed from mains at minimum voltage (at rated load and max recharging current)		A	423	518	611
Rectifier soft-start (walk-in)		s	5 ÷ 30 (programmable)		
Rectifier sequential start-up (hold-off)		s	1 ÷ 300 (programmable)		

## BATTERY

POWER		kVA	200	250	300
Battery type (standard)			Sealed lead acid (VRLA - maintenance free)		
Number of cells			360 - 372		
Floating voltage at 25 °C	360 el.	Vdc	812		
	372 el.		840		
Minimum discharge voltage	360 el.	Vdc	620		
	372 el.		632		
Power drawn by the inverter (at rated load $\cos \varphi = 1$ )		kW	204,1	255,1	306,1
Power drawn by the inverter (at rated load and minimum battery voltage)		A	329	411	494
Battery protection			Fuses		
Battery test			Provided as standard		

## INVERTER

POWER		kVA	200	250	300
Inverter bridge type			IGBT (High frequency PWM) 3 level		
Rated apparent power at $\cos \varphi = 1$		kVA	200	250	300
Rated active power at $\cos \varphi = 1$		kW	200	250	300
DC/AC efficiency	@ 25% load	%	96,0		
	@ 50% load		97,0		
	@ 75% load		97,0		
	@ 100% load		98,0		
Output			3-phase / 4-wire		
rated output voltage (selectable)		Vac	380 - 400 - 415		
Output voltage stability					
- Static (balanced load)		%	+/- 1		
- Static (unbalanced load)		%	+/- 2		
- Dynamic (load step 20%-100%-20%)		%	+/- 5		
- Output voltage recovery after load step		ms	< 20		
- Classification according to EN 62040-3			VFI-SS-111		
Phase angle accuracy					
- Balanced load		°	+/- 1		
- Unbalanced load (100% - 0% - 0%)		°	+/- 1		
Output frequency		Hz	50 - 60		
Output frequency stability					
- Internal clock (mains not present)		Hz	+/- 0,001		
- Inverter synchronized with mains		Hz	+/- 2 (other on request)		
- Maximum frequency slew rate		Hz/s	< 1		
Rated output current (@ 400 Vac)		A	289	361	433
Overload capability	>100...110%	min	10		
	>110...125%	min	5		
	>125...150%	sec	30		
	>150%	ms	100		
Short circuit current <sup>(1)</sup>		A	720	900	1050
Short circuit characteristic			Current limited with electronic protection Automatic stop after 5 seconds		
Output waveform			Sinusoidal		
Output voltage harmonic distortion THDv					
- With linear load		%	< 1		
- With non-linear load		%	< 5		
- According to EN 62040-3			Fully compliant		
Max crest factor without derating			3 : 1		

<sup>(1)</sup> Value referred to short-circuit mode IK1 - IK2 - IK3

## BYPASS

POWER	kVA	200	250	300
Automatic bypass		Electronic thyristor switch		
Input		3-phase / 4-wire		
Protection		Fuses		
Rated input voltage (selectable)	Vac	380 - 400 - 415		
Tolerance (selectable)	%	+/- 10		
Input frequency (selectable)	Hz	50 - 60		
Tolerance (selectable)	%	+/- 10		
Transfer mode		No-break		
Inverter --> automatic bypass transfer		In case of: - Short-circuit - Battery discharged - Inverter test - Inverter failure		
Automatic bypass --> inverter transfer		Automatic Block on bypass in case of 6 transfers in 2 minutes, local reset by display		
Overload capability	%	150 continuously 1000 for 1 cycle		
Manual bypass		- Electronically controlled - No-break assisted re-start procedure		
Back-feed protection		NC contact for the control of an external device		

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## SOFTWARE ENABLED FUNCTIONS

1. DIESEL MODE OPERATION
2. RECTIFIER WALK-IN TIME
3. RECTIFIER DELAY ON STARTUP (HOLD-OFF TIME)
4. DYNAMIC CHARGING MODE (DCM)
5. VFD (ECO) OPERATING MODE MANAGEMENT
6. FREQUENCY CONVERTER

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## OPTIONS

1. BATTERY TEMPERATURE VOLTAGE COMPENSATION
2. REMOTE STATUS / ALARMS CARD
3. SERIAL INTERFACE RS-485 (ModBus protocol RTU)
4. SNMP ADAPTER
5. PARALLEL CARD INTERFACE KIT
6. LOAD-SYNC CARD INTERFACE KIT
7. ISOLATION TRANSFORMER
8. WALL MOUNTED FUSED SWITCH BOX
9. SPECIAL PAINT
10. ENERGY ENHANCEMENT KIT (PLEASE CONTACT THE MANUFACTURER FOR AVAILABILITY AND LEAD TIME.)